We claim:

1. A method of decontaminating a fluid comprising:

(a) applying an electric field across a fluid having contaminants dispersed therein; and

(b) flowing the fluid through a decontamination cell to separate from the fluid at least a portion of the contaminants.

2. The method of claim 1, wherein the fluid comprises an aqueous slurry of cellulosic fibers.

3. The method of claim 2, wherein the fluid comprises an aqueous slurry of recycled wood pulp fibers.

4. The method of claim 3, wherein the recycled wood pulp fibers are obtained from newspapers, magazines, or corrugated containers.

5. The method of claim 2, wherein the cellulosic slurry has a consistency of between about 0.1 and 5%.

6. The method of claim 1, wherein the contaminants comprise particles selected from the group consisting of flexographic inks, conventional inks, microstickies, toner inks, wax particles, and combinations thereof.

7. The method of claim 1, wherein the electric field is generated by a direct current.

8. The method of claim 1, wherein the electric field is applied to the fluid by flowing the fluid between an anode and a cathode of an electro-potential cell.

9. The method of claim 8, wherein the electrical potential is between about 800 and about 6000 volts per inch between the anode and cathode.

10. The method of claim 9, wherein the electrical potential is between about 1000 and about 2000 volts per inch between the anode and cathode.

11. The method of claim 10, wherein the electrical potential is between about 1400 and about 1700 volts per inch between the anode and cathode.

12. The method of claim 8, wherein the discharge surface area of the anode is approximately perpendicular to the cathode surface.

13. The method of claim 8, wherein the anode comprises an elongated rod which tapers to a point in the direction of the cathode.

14. The method of claim 8, wherein the electropotential cell comprises a cylindrical housing in which the anode and cathode are secured, said housing having a fluid inlet through which the fluid enters the housing and a fluid outlet through which the fluid is discharged from the housing after passing through the electric field.

15. The method of claim 14, wherein the housing is cylindrical in shape, the fluid inlet having a central axis approximately coextensive with the central axis of the fluid outlet.

16. The method of claim 8, wherein the electropotential cell comprises a T- or L-shape housing in which the anode and cathode are secured, said housing having a fluid inlet through which the fluid enters the housing and a fluid outlet through which the fluid is discharged from the housing after passing through the electric field, the fluid inlet being oriented approximately perpendicular to the fluid outlet.

17. The method of claim 1, wherein the decontamination cell comprises:

an elongated cell that includes:

i. a longitudinal axis and an interior surface defining a decontamination chamber;

ii. a fluid inlet end;

iii. an opposed fluid outlet end; and

iv. a light contaminant collection hood within an upper portion of the decontaminating chamber in fluid communication with the chamber and having an upper port for purging light contaminants therethrough,

wherein said light contaminants purging is effected by a fluid head which creates a fluid flow gradient within the decontaminating chamber between turbulent flow adjacent the inlet end and laminar flow adjacent the outlet end such that a transitional flow region is at least partially adjacent the collection hood.

18. The method of claim 17, wherein the elongated cell further comprises a heavy contaminant collection trough for separating heavy contaminants from the fluid.

19. The method of claim 1, further comprising, before step (a), introducing gas bubbles into the fluid, wherein, in step (b) the decontamination cell separates from the fluid at least a portion of the bubbles with the contaminants.

20. The method of claim 19, wherein the gas consists essentially of air.

21. The method of claim 19, wherein the bubbles have a mean diameter between about 30 and about 60 microns.

22. The method of claim 21, wherein the bubbles have a mean diameter between about 40 and about 50 microns.

23. The method of claim 19, wherein the gas bubbles are introduced by gas injection into the fluid, which is flowing at a velocity between about 3 and 20 ft/sec.

24. The method of claim 23, wherein the velocity is between about 5 and 9 ft/sec.

25. A method of killing organisms suspended in an aqueous fluid comprising:

flowing an aqueous fluid having organisms dispersed therein between an anode and a cathode of an electro-potential cell; and

applying an effective electric field across the fluid to kill the organisms.

26. The method of claim 25, wherein the electrical potential is greater than about 1500 volts per inch between the anode and cathode.

27. The method of claim 25, further comprising flowing the aqueous fluid through a decontamination cell to separate from the fluid at least a portion of the killed organisms and/or other contaminants, if any, present in the aqueous fluid.

28. A recycled cellulosic pulp decontaminated by the method of claim 1.

29. An electropotential cell for treating a flowing fluid with an electric field comprising:

a housing having a fluid inlet and a fluid outlet, a fluid flow path being defined therebetween;

an anode secured within the housing in the fluid flow path;

a cathode secured within the housing in the fluid flow path; and

a variable power supply in electrical connection to the anode and to the cathode effective to create an electric field between said cathode and said anode.

30. The electropotential cell of claim 29, wherein the power supply provides an electrical potential between about 800 and about 6000 volts per inch between the anode and cathode.

31. The electropotential cell of claim 29, wherein the electric field is a direct current electric field.

32. The electropotential cell of claim 29, wherein the anode discharge surface area is approximately perpendicular to the cathode surface.

33. The electropotential cell of claim 29, wherein the anode comprises an elongated rod which tapers to a point in the direction of the cathode.

34. The electropotential cell of claim 29, wherein the cathode is in the shape of ring which fittingly engages an inner surface of the housing, said fluid flow path extending through the ring.

35. The electropotential cell of claim 29, wherein the housing is cylindrical in shape, the fluid inlet having a central axis approximately coextensive with the central axis of the fluid outlet.

36. The electropotential cell of claim 29, comprising a T- or L-shape housing in which the anode and cathode are secured, said housing having a fluid inlet through which the fluid enters the housing and a fluid outlet through which the fluid is discharged from the housing after passing through the electric field, the fluid inlet being oriented approximately perpendicular to the fluid outlet.

37. An apparatus for decontaminating a fluid comprising:

an electropotential cell comprising a housing containing an anode and a cathode for applying an electric field a fluid flowing through the housing; and

a decontamination cell in fluid communication with the electropotential cell for separating from the fluid at least a portion of any contaminants dispersed therein.

38. The apparatus of claim 37, further comprising a means for introducing gas bubbles into the fluid before the fluid flows to the electropotential cell.

39. The apparatus of claim 37, wherein the electrical potential is between about 800 and about 6000 volts per inch between the anode and cathode.

40. A method for increasing the strength of a paper made from lignin-containing cellulosic fibers comprising:

providing an aqueous slurry comprising the lignin-containing cellulosic fibers and a source of hydroxyl compounds;

applying an effective electric field across the aqueous slurry to adsorb the hydroxyl compounds onto the surface of the lignin in the cellulosic fibers treated thereby; and

making paper from the treated cellulosic fibers, whereby said paper has greater tensile strength than paper made from cellulosic fibers not treated with the electric field.

41. The method of claim 40, wherein the cellulosic fibers comprise recycled pulp obtained from a source selected from the group consisting of newspapers, magazines, corrugated containers, and combinations thereof.

42. The method of claim 40, wherein cellulosic fibers comprise thermomechnical pulp or kraft pulp.

43. The method of claim 40, wherein the source of hydroxyl compounds comprises sodium hydroxide or another hydroxide-containing compound.

44. The method of claim 40, wherein the electric field is applied to the fluid by flowing the fluid between an anode and a cathode of an electro-potential cell.

45. The method of claim 44, wherein the electrical potential is greater than about 1500 volts per inch between the anode and cathode.

46. The method of claim 45, wherein the electrical potential is between about 3000 and about 5700 volts per inch between the anode and cathode.

47. A paper from made by the method of claim 40.